Complete Summary

GUIDELINE TITLE

Modifications in endoscopic practice for the elderly.

BIBLIOGRAPHIC SOURCE(S)

Eisen GM, Chutkan R, Goldstein JL, Petersen BT, Ryan ME, Sherman S, Vargo JJ 2nd, Wright RA, Young HS, Catalano MF, Dentsman F, Smith CD, Walter V V. Modifications in endoscopic practice for the elderly. Gastrointest Endosc 2000 Dec;52(6 Pt 1):849-51. [11 references] PubMed

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Diseases or conditions requiring gastrointestinal endoscopy

Note: The indications for gastrointestinal endoscopy among the elderly are largely the same as those applied throughout adulthood with some variation in their relative frequency based upon the development of age-related diseases such as cancer, gastrointestinal ischemia, and biliary stone disease.

GUIDELINE CATEGORY

Evaluation
Management
Risk Assessment

CLINICAL SPECIALTY

Gastroenterology
Geriatrics
Surgery

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

To provide guidance regarding endoscopic practice issues that may differ across age groups

TARGET POPULATION

Geriatric patients undergoing gastrointestinal endoscopy

Notes: Geriatric patients are often defined as those 65 years of age and over; advanced age patients are those eighty years and over. As physiologic age is a continuum, this document is not intended to apply to rigidly defined age ranges.

INTERVENTIONS AND PRACTICES CONSIDERED

Evaluation/Risk Assessment

Assessment of risk engendered by age-related diseases versus acknowledged benefits of a procedure

Management

Preprocedure Preparation

1. Preprocedure fasting
2. Large volume polyethylene glycol electrolyte solution lavage or sodium phosphate osmotic laxative preparations
3. Automatic pacing (achieved by placing a ring magnet on the skin overlying the device) in patients with pacemakers and internal defibrillators whenever monopolar electrosurgical devices are being used (i.e., standard monopolar snares, hot biopsy forceps, sphincterotomy, and argon plasma coagulation)
4. Inactivation of intracardiac defibrillator prior to the use of electrocautery

Sedation and Analgesia

1. Conscious sedation using midazolam and/or narcotics
    - Fewer agents at a slower rate and lower cumulative dose than in general population
    - Standard monitoring procedures, including cardiovascular monitoring
    - Oxygen administration before and during conscious sedation
2. Nonsedated endoscopy

Equipment/Interventions

Standard use equipment and interventions with no age-specific differences

MAJOR OUTCOMES CONSIDERED

Not stated

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

In preparing this guideline a MEDLINE search was performed and additional references were obtained from the bibliographies of the identified articles.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Guidelines for appropriate utilization of endoscopy are based on a critical review of the available data and expert consensus.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Not stated

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not applicable

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Indications and Contraindications

For patients in any age group, endoscopy should be applied only when the results will materially influence management or outcome. The indications for gastrointestinal endoscopy among the elderly are largely the same as those applied throughout adulthood with some variation in their relative frequency based upon the development of age-related diseases, such as cancer, gastrointestinal ischemia, and biliary stone disease. The same relative and absolute contraindications also pertain, without respect to age. Increased attention should be paid, however, to the risk engendered by age-related diseases, such as cardiac and pulmonary dysfunction. Significant risk may outweigh the acknowledged benefits of a procedure.

Ethical issues are raised by the use of diagnostic or therapeutic modalities in patients with a limited prognosis or in terminal or moribund patients. The acuity of the situation and the likelihood of benefit may influence the appropriateness of the procedure. For example, emergency endoscopy for control of hemorrhage may be more appropriate than elective percutaneous endoscopic gastrostomy (PEG) placement in a terminal patient, while neither may be appropriate in a moribund patient.

Analogous comparisons should restrict the use of elective screening procedures for neoplasia when the principal benefit extends into the future beyond anticipated life-expectancy. National guidelines do not provide upper age constraints for colorectal cancer screening, but some authorities espouse limiting screening to those age 80 and under and discontinuing surveillance at age 85. While physiologic age and prognosis must be considered at any age, the rationale for screening cannot be supported far beyond this age range.

Preprocedure Preparation

Preparation for endoscopy in the geriatric or aged populations differs little from that in younger adults. For EGD, solids should not be ingested within eight hours but clear liquids can be taken up to 4 hours prior to the procedure. Either large volume polyethylene glycol-electrolyte solution (PEG) lavage or sodium phosphate osmotic laxative preparations can be used before colonoscopy. Caution should be exercised in those patients with renal or cardiac dysfunction, in whom fluid and electrolyte shifts can occur with the osmotic preparations.

Recommendations for management of patients with pacemakers and internal defibrillators are not well defined. Those who are pacemaker dependent, or usually in a paced rhythm, should be driven to automatic pacing by placing a ring magnet on the skin overlying the device whenever monopolar electrosurgical devices are being used. This includes during use of standard monopolar snares, hot biopsy forceps, sphincterotomy, and argon plasma coagulation. Those who are not in a continually paced rhythm should be monitored, with a magnet available for continuous pacing if needed. If the status of the patient's rhythm is not known, a magnet should be used during electrocautery. Intracardiac defibrillators should be inactivated prior to the use of electrocautery. This must always be done with the use of continuous rhythm monitoring until the defibrillator is reactivated following the procedure. Alternative means of tissue removal, destruction, or hemostasis, such as cold snare or biopsy, injection therapy, heater probe thermocoagulation, band ligation and clipping can be used to simplify management of patients with defibrillators.

Sedation and Analgesia

Most gastrointestinal endoscopy is performed with the benefit of conscious sedation. Conscious sedation refers to a controlled state of diminished consciousness wherein protective reflexes, the ability to respond to moderate physical or verbal stimuli, and ability to maintain a patent airway are retained. In contrast, deep sedation refers to a controlled state of depressed consciousness from which the patient is not easily aroused, with likely loss of protective airway reflexes and of the ability to maintain a patent airway. Several guidelines regarding conscious sedation and monitoring of adult patients have been published.

A variety of physiologic processes contribute to the increase in sensitivity and risk for conscious sedation in geriatric patients. The aging process is characterized by a progressive decline in organ function beginning in the fourth decade but accelerating during the traditional geriatric years beyond the sixth decade. The onset and rapidity of senescence is highly variable among persons. A ubiquitous age-related loss of tissue elasticity contributes to systolic hypertension, atrial diastolic dysfunction with a resultant sensitivity to alterations in venous return, increased residual pulmonary volumes, and significant declines in vital capacity. Pulmonary septae and alveolar surface area decline in a nonuniform fashion, yielding a functional ventilation-perfusion mismatch. As a result, perioperative arterial oxygenation progressively deteriorates with age, with or without supplementation. While neural control of ventilation remains intact in healthy geriatric patients, the cardiorespiratory stimulation mediated by reflex mechanisms in response to hypoxia or hypercarbia are blunted and delayed.

Narcotic and nonnarcotic central nervous system (CNS) depressants produce greater respiratory depression and a greater incidence of transient apnea and episodic respirations. The risk for aspiration also rises, as a result of a significant increase in the sensory stimulus threshold required for reflexive glottic closure.

Aging-related changes in body composition include a decline in skeletal muscle mass and in metabolically active parenchyma of the brain, liver, and kidney. Basal metabolic requirements and consequent body heat production decline, putting elderly patients at risk for hypothermia during prolonged periods of sedation or anesthesia. The age-related increase in lipid fraction of body mass yields an expansion of the distribution volume for pharmacologic agents, which are highly lipid soluble, including the benzodiazepines. In company with reduced hepatic and renal clearance mechanisms, this can prolong recovery of elderly patients after sedation.

Finally, a complex interplay between heightened CNS sensitivity and alterations in drug receptors, volumes of distribution, and intercompartmental transfer contributes to the reduced dosage requirements for all of the standard agents used in conscious sedation. Nevertheless, age alone is not a major determinant of morbidity. Rather, age-related diseases and overly rapid or excessive dosing contribute more to the cardiopulmonary complications of conscious sedation than does age itself. The primary modification in conscious sedation practices required in the geriatric population is administration of fewer agents at a slower rate and lower cumulative dose. As in younger adults, midazolam and/or narcotics are generally used. Initial doses should be lower and titration should be more gradual to allow assessment of the full effect at each dose level.

One means of minimizing risk in the elderly patient is to perform endoscopy without sedation. In the Western World conscious sedation significantly improves tolerance for esophagogastroduodenoscopy (EGD), and presumably for colonoscopy in many patient subsets. Smaller caliber upper endoscopes and new colonoscopes may allow an expansion of nonsedated endoscopy in this country.

Monitoring/Procedural Care

As with all conscious sedation, standard monitoring procedures should be followed. This role assumes increasing importance with increasing acuity of the patient and with increasing technical requirements of the procedure, as the endoscopist's attention is insufficiently available for patient assessment during these situations.

Oxygen administration before and during conscious sedation reduces the incidence of desaturation episodes. This may be warranted in those with known cardiovascular or pulmonary compromise. Oxygen dosing should respect the potential risk of respiratory depression when patients with chronic hypercarbia lose the respiratory drive of hypoxemia.

Cardiovascular monitoring is advisable in geriatric patients, particularly those with known cardiovascular rhythm disturbances, pacemakers, or internal defibrillators and the potential need for use of electrocautery.

Equipment

Monitoring devices and resuscitative equipment and drugs used in geriatric patients are the same as for all patients. Endoscopes and accessories are the same as those used in other adults. Pediatric instruments, particularly colonoscopes with more flexible insertion tubes, are often useful in older patients with significant fixation or narrowing of the sigmoid colon due to prior surgery or diverticular disease.

Therapeutic Interventions

There are no age-specific differences in the technical aspects of endoscopic therapies for geriatric patients. As previously discussed, prudent judgment should be used regarding the relative risk and benefit for endoscopic therapies, which may have little bearing on prognosis or quality of life, due to overriding comorbidities.

Summary

The practice of gastrointestinal endoscopy in patients at the extremes of the age spectrum is increasingly common. Indications for endoscopy among the aged population vary significantly in incidence but only minimally in specifics, compared to the overall adult population. Conscious sedation requires heightened attention to dosing and effects of standard agents. Intensified monitoring is appropriate for many patients. Safe and effective diagnostic and therapeutic interventions can be expected in these age groups.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is not specifically stated for the recommendations.

When little or no data exist from well-designed prospective trials, emphasis was given to results from large series and reports from recognized experts. Guidelines for appropriate utilization of endoscopy are based on a critical review of the available data and expert consensus.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate use of endoscopy procedures in the elderly

POTENTIAL HARMS

- Either large volume polyethylene glycol–electrolyte solution lavage or sodium phosphate osmotic laxative preparations can be used before colonoscopy. Caution should be exercised in those patients with renal or cardiac dysfunction, in whom fluid and electrolyte shifts can occur with the osmotic preparations.
- Narcotic and nonnarcotic central nervous system (CNS) depressants produce greater respiratory depression and a greater incidence of transient apnea and episodic respirations. The risk for aspiration also rises, as a result of a significant increase in the sensory stimulus threshold required for reflexive glottic closure.
- Basal metabolic requirements and consequent body heat production decline, putting elderly patients at risk for hypothermia during prolonged periods of sedation or anesthesia.
- The age-related increase in lipid fraction of body mass yields an expansion of the distribution volume for pharmacologic agents, which are highly lipid soluble, including the benzodiazepines. In company with reduced hepatic and renal clearance mechanisms, this can prolong recovery of elderly patients after sedation.
- Age-related diseases and overly rapid or excessive dosing contribute more to the cardiopulmonary complications of conscious sedation than does age itself.

CONTRAINDICATIONS

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The indications for gastrointestinal endoscopy among the elderly are largely the same as those applied throughout adulthood with some variation in their relative frequency based upon the development of age-related diseases such as cancer, gastrointestinal ischemia, and biliary stone disease. The same relative and absolute contraindications also pertain, without respect to age.

QUALIFYING STATEMENTS

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- Further controlled clinical studies are needed to clarify aspects of this statement, and revision may be necessary as new data appear. Clinical considerations may justify a course of action at variance to these recommendations.
- As physiologic age is a continuum, this document is not intended to apply to rigidly defined age ranges.
- The information in this guideline is intended only to provide general information and not as a definitive basis for diagnosis or treatment in any particular case. It is very important that individuals consult their doctors about specific conditions.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Staying Healthy

IOM DOMAIN

Effectiveness
Safety

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Eisen GM, Chutkan R, Goldstein JL, Petersen BT, Ryan ME, Sherman S, Vargo JJ 2nd, Wright RA, Young HS, Catalano MF, Dentsman F, Smith CD, Walter V V. Modifications in endoscopic practice for the elderly. Gastrointest Endosc 2000 Dec;52(6 Pt 1):849-51. [11 references] PubMed

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2000 Dec

GUIDELINE DEVELOPER(S)

American Society for Gastrointestinal Endoscopy - Medical Specialty Society

SOURCE(S) OF FUNDING

American Society for Gastrointestinal Endoscopy

GUIDELINE COMMITTEE

Standards of Practice Committee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available from the American Society for Gastrointestinal Endoscopy Web site.

Print copies: Available from the American Society for Gastrointestinal Endoscopy, 1520 Kensington Road, Suite 202, Oak Brook, IL 60523.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on October 14, 2004. The information was verified by the guideline developer on November 5, 2004.

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